

L8 ANSWER 1 OF 6 CAPLUS COPYRIGHT 2002 ACS

AN 2001:179666 CAPLUS

DN 134:224313

TI **Hydrogenation**/hydrogenolysis of carbonyl compounds and **catalysts** therefor

IN Huber, Sylvia; Sprague, Michael Jolyon; Breitscheidel, Boris;  
Wulff-doering, Joachim; Hesse, Michael; Pinkos, Rolf; Liang, Shelue;  
Kumberger, Otto; Walter, Marc

PA BASF AG, Germany

SO Ger. Offen., 10 pp.

CODEN: GWXXBX

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 19942895	A1	20010315	DE 1999-19942895	19990908
	WO 2001017934	A1	20010315	WO 2000-EP8195	20000822
	W: JP, KR, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	EP 1218326	A1	20020703	EP 2000-960507	20000822
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL				
PRAI	DE 1999-19942895	A	19990908		
	WO 2000-EP8195	W	20000822		

AB Carbonyl group-contg. org. compds. are **hydrogenated** and/or hydrogenolyzed by a procedure in which the org. compd. is brought in contact with a molded **catalyst** in the presence of hydrogen, whereby (a) an oxide is prepd. which contains **copper oxide, zinc oxide, and alumina**, (b) metallic Cu or powd. **cement** or a mixt. is added to the oxide, and (c) the mixt. of a and b is molded to provide the **catalyst**. Such **catalysts** have good mech. properties and are efficient. Examples for the prodn. of 1,6-hexanediol from di-Me adipate were given.

L8 ANSWER 2 OF 6 CAPLUS COPYRIGHT 2002 ACS

AN 1980:502065 CAPLUS

DN 93:102065

TI **Catalyst** and its use in conversion reactions of carbon monoxide

IN Sugier, Andre; Courty, Philippe; Freund, Edouard

PA Societe Francaise des Produits pour Catalyse (PROCATALYSE), Fr.

SO Ger. Offen., 22 pp.

CODEN: GWXXBX

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 2946137	A1	19800604	DE 1979-2946137	19791115
	DE 2946137	C2	19880630		
	FR 2441420	A1	19800613	FR 1978-32704	19781117
	FR 2441420	B1	19820108		
	BE 879963	A1	19800512	BE 1979-9606	19791112
	ZA 7906125	A	19801126	ZA 1979-6125	19791114
	NL 7908369	A	19800520	NL 1979-8369	19791115
	JP 55070347	A2	19800527	JP 1979-149411	19791116
	JP 61037984	B4	19860827		
	GB 2037176	A	19800709	GB 1979-39779	19791116

GB 2037176                      B2    19830106  
 US 4257920                      A     19810324                      US 1979-95007                      19791116  
 PRAI FR 1978-32704                      19781117  
 AB    CuO-ZnO-rare earth oxide **catalysts** supported on Al<sub>2</sub>O<sub>3</sub>  
**cement** are described. The Al<sub>2</sub>O<sub>3</sub> **cement** contains CaO (or  
 BaO). The **catalyst** may also contain a noble metal of Group  
 VIII. The **catalysts** were used in **hydrogenation** of CO  
 to MeOH and in the conversion reaction of CO with H<sub>2</sub>O vapor. The Al<sub>2</sub>O<sub>3</sub>  
**cement** used in the examples was Super-Secar-Laffarge which  
 contains Al<sub>2</sub>O<sub>3</sub> 82%, CaO 17%, and smaller amts. of other oxides. The rare  
 earth oxides used in examples were La<sub>2</sub>O<sub>3</sub>, Ce<sub>2</sub>O<sub>3</sub>, and Nd oxide-Pr oxide  
 mixts. The noble metals were Pd, Rh, and Pt.

L8    ANSWER 3 OF 6    USPATFULL  
 AN    2000:50877    USPATFULL  
 TI    **Hydrogenation catalyst**, process for preparing and  
 process of using said **catalyst**  
 IN    Thakur, Deepak S., Solon, OH, United States  
       Palka, Eugene, Parma, OH, United States  
       Sullivan, Thomas I., Strongsville, OH, United States  
       Nebesh, Eugene, Parma, OH, United States  
       Roberts, Brian D., Cleveland Hts., OH, United States  
 PA    Engelhard Corporation, Iselin, NJ, United States (U.S. corporation)  
 PI    US 6054627                      20000425  
 AI    US 1992-889557                      19920527 (7)  
 RLI    Division of Ser. No. US 1991-703923, filed on 22 May 1991, now  
 patented,

      Pat. No. US 5134108  
 DT    Utility  
 FS    Granted  
 EXNAM Primary Examiner: Cook, Rebecca  
 LREP   Keller, Raymond F.  
 CLMN   Number of Claims: 30  
 ECL    Exemplary Claim: 1  
 DRWN   No Drawings  
 LN.CNT 753

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB    Disclosed are **catalysts** in powdered form comprising a major  
 amount of the oxides of a first metal selected from copper or zinc, a  
 second metal selected from chromium, molybdenum, tungsten and vanadium,  
 and optionally, a minor amount of the oxide of a promoter metal  
 selected

      from the group consisting of manganese, barium, zinc, nickel, cobalt,  
 cadmium, iron and any combination thereof provided that the promoter  
 metal is not zinc if the first metal is zinc, wherein the average  
 particle diameter of the powder is from about 6 to about 20 microns;

and  
 the particle surface area is from about 20 to about 70 m.<sup>2</sup>/g. Also  
 disclosed is a process for preparing such **catalysts** and a  
 process for **hydrogenating** aldehydes, ketones, carboxylic acids  
 and carboxylic acid esters with **catalysts** of the type  
 described.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8    ANSWER 4 OF 6    USPATFULL  
 AN    94:77891    USPATFULL  
 TI    **Hydrogenation catalyst**, process for preparing and  
 process of using said **catalyst**  
 IN    Thakur, Deepak S., Solon, OH, United States

Roberts, Brian L., Solon, OH, United States  
Sullivan, Thomas J., Strongsville, OH, United States  
Vichek, Anita L., Mentor, OH, United States  
PA Engelhard Corporation, Iselin, NJ, United States (U.S. corporation)  
PI US 5345005 19940906  
AI US 1992-930123 19920918 (7)  
RLI Division of Ser. No. US 1991-680100, filed on 2 Apr 1991, now patented,  
Pat. No. US 5155086 which is a continuation-in-part of Ser. No. US  
1989-422624, filed on 17 Oct 1989, now abandoned which is a  
continuation-in-part of Ser. No. US 1989-405983, filed on 12 Sep 1989,  
now abandoned  
DT Utility  
FS Granted  
EXNAM Primary Examiner: Evans, Joseph E.  
CLMN Number of Claims: 19  
ECL Exemplary Claim: 1  
DRWN 2 Drawing Figure(s); 2 Drawing Page(s)  
LN.CNT 984

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB In one embodiment, the invention relates to a **catalyst** in powdered form which comprises a major amount of the oxides of **copper** and **zinc**, and a minor amount of **aluminum oxide** wherein the pore volume of pores of said **catalysts** having a diameter between about 120 and about 1000 .ANG. is at least about 40% of the total pore volume. In another embodiment, the invention relates to a process for preparing **hydrogenation catalysts** comprising the oxides of **copper**, **zinc** and **aluminum** which comprises the steps of

(A) preparing a first aqueous solution containing at least one water-soluble copper salt and at least one water-soluble zinc salt;

(B) preparing a second solution containing at least one water-soluble basic aluminum salt and at least one alkaline precipitating agent;

(C) mixing the first and second solutions whereby an insoluble solid is formed;

(D) recovering the insoluble solid.

The invention also relates to a process for **hydrogenating** aldehydes, ketones, carboxylic acids and carboxylic acid esters with **catalysts** of the type described. **Catalysts** of the invention are useful in both fixed bed and slurry phase **hydrogenation** reactions.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 5 OF 6 USPATFULL  
AN 92:84844 USPATFULL  
TI **Hydrogenation catalyst**, process for preparing and process of using said **catalyst**  
IN Thakur, Deepak S., Solon, OH, United States  
Roberts, Brian D., Solon, OH, United States  
Sullivan, Thomas J., Strongsville, OH, United States  
Vichek, Anita L., Mentor, OH, United States  
PA Engelhard Corporation, Iselin, NJ, United States (U.S. corporation)  
PI US 5155086 19921013  
AI US 1991-680100 19910402 (7)

RLI Continuation-in-part of Ser. No. US 1989-422624, filed on 17 Oct 1989, now abandoned which is a continuation-in-part of Ser. No. US 1989-405983, filed on 12 Sep 1989, now abandoned

DT Utility

FS Granted

EXNAM Primary Examiner: McFarlane, Anthony

LREP Renner, Otto, Boisselle & Sklar

CLMN Number of Claims: 28

ECL Exemplary Claim: 1,17

DRWN 2 Drawing Figure(s); 2 Drawing Page(s)

LN.CNT 1002

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB In one embodiment, the invention relates to a **catalyst** in powdered form which comprises a major amount of the oxides of **copper** and **zinc**, and a minor amount of **aluminum oxide** wherein the pore volume of pores of said **catalysts** having a diameter between about 120 and about 1000 .ANG. is at least about 40% of the total pore volume. In another embodiment, the invention relates to a process for preparing **hydrogenation catalysts** comprising the oxides of **copper**, **zinc** and **aluminum** which comprises the steps of

(A) preparing a first aqueous solution containing at least one water-soluble copper salt and at least one water-soluble zinc salt;

(B) preparing a second solution containing at least one water-soluble basic aluminum salt and at least one alkaline precipitating agent;

(C) mixing the first and second solutions whereby an insoluble solid is formed;

(D) recovering the insoluble solid.

The invention also relates to a process for **hydrogenating** aldehydes, ketones, carboxylic acids and carboxylic acid esters with **catalysts** of the type described. **Catalysts** of the invention are useful in both fixed bed and slurry phase **hydrogenation** reactions.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 6 OF 6 USPATFULL

AN 92:61883 USPATFULL

TI Process for preparing **catalyst** with copper or zinc and with chromium, molybdenum, tungsten, or vanadium, and product thereof

IN Thakur, Deepak S., Solon, OH, United States

Palka, Eugene, Parma, OH, United States

Sullivan, Thomas J., Strongsville, OH, United States

Nebesh, Eugene, Parma, OH, United States

Roberts, Brian D., Cleveland Heights, OH, United States

PA Engelhard Corporation, Edison, NJ, United States (U.S. corporation)

PI US 5134108 19920728

AI US 1991-703923 19910522 (7)

DT Utility

FS Granted

EXNAM Primary Examiner: Shine, W. J.; Assistant Examiner: McGinty, Douglas J.

LREP Renner, Otto, Boisselle & Sklar

CLMN Number of Claims: 32

ECL Exemplary Claim: 1

DRWN No Drawings

LN.CNT 742

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB This **hydrogenation catalyst** comprises a major amount of the oxides of a first metal selected from copper or zinc, a second metal selected from chromium, molybdenum, tungsten and vanadium, and optionally, a minor amount of the oxide of a promoter metal selected from the group consisting of manganese, barium, zinc, nickel, cobalt, cadmium, iron and any combination thereof provided that the promoter metal is not zinc if the first metal is zinc. The average particle diameter of the powder is from about 6 to about 20 microns; and the particle surface area is from about 20 to about 70 m.<sup>sup.2</sup> /g. The process for preparing this **catalyst** comprises the steps of

- (A) simultaneously and adding to a first vessel, (1) a first aqueous solution comprising a copper or zinc salt; (2) a second aqueous solution comprising a soluble base, provided that either the copper solution or the soluble base solution also contains a soluble salt of at least one second metal; or (3) a third aqueous solution comprising a soluble salt of at least one second metal is added simultaneously to the first vessel whereby an aqueous slurry of insoluble solid is formed in the first vessel, provided further that the second metal is chromium, molybdenum, tungsten, or vanadium;
- (B) advancing at least a portion of the aqueous slurry from the first vessel to a second vessel;
- (C) recovering the solids from the aqueous slurry in the second vessel; and
- (D) calcining the recovered solids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

(FILE 'HOME' ENTERED AT 14:51:00 ON 04 DEC 2002)

FILE 'CAPLUS, USPATFULL' ENTERED AT 14:51:32 ON 04 DEC 2002

L1	32194 S COPPER (P) ZINC (P) ALUMIN?
L2	1182 S L1 AND CEMENT
L3	395 S L2 AND CATALYST
L4	82 S L3 AND HYDROGENAT?
L5	21 S L4 AND COPPER OXIDE
L6	18 S L5 AND ZINC OXIDE
L7	6 S L6 AND ALUMINUM OXIDE
L8	6 S L7 AND CEMENT
L9	2436 S PULVERULENT COPPER OR POWDER? COPPER
L10	202 S L9 (P) ZINC (P) ALUMIN?
L11	46 S L10 AND HYDROGENAT?
L12	1 S L11 AND COPPER OXIDE
L13	5 S L1 AND PULVERULENT COPPER
L14	5 S L13 NOT L8
L15	6 S L8 NOT L13